OPTI-UPS
Protect and Serve

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USER MANUAL

PS-D Line interactive UPS

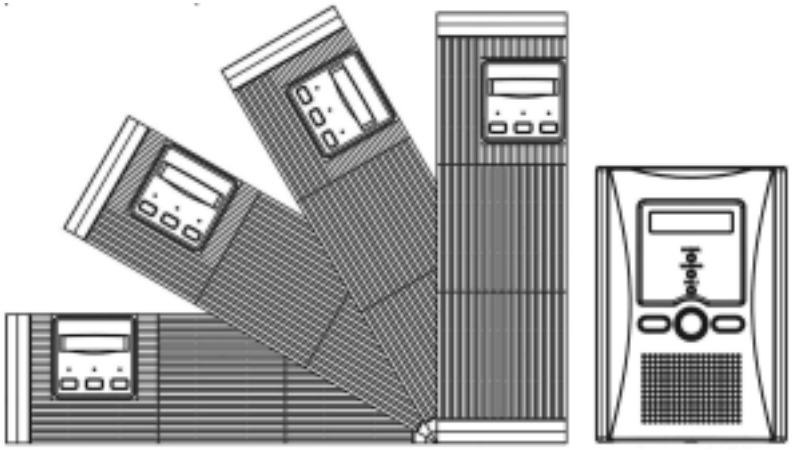
PS650D / PS1000D / PS1500D / PS2000D

PS1000D-RM / PS1500D-RM

PS1000D-RT / PS1500D-RT / PS2000D-RT

PS3000D-RT / PS5000D-RT / PS7500D-RT / PS10000D-RT

PS3000DL / PS5000DL / PS7500DL



Uninterruptible Power Supply

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1. INTRODUCTION

1.1 General Description

The continuity of electrical power is an essential requirement for critical load operations. The Uninterruptible Power System (UPS) is designed to meet the user‘s need of present computer, server and the equipment of office automation that make the UPS more compact and less noisy.

To choose the UPS as your equipment protector is a wise investment because it supplies reliable, pure and stable power at affordable price.

1.2 Key features

- Line-interactive Sine-wave Topology
- Intelligent Charger w/PFC
- Detachable Dot-Matrix LCD Panel (1K and above)
- Compact Size
- Rack/Tower Convertible (3K and above)
- Intelligent Fan Speed Control
- Integrate with Generator Set
- Hot Swappable Battery (Rack model)
- Multiple Interface Options (1K and above)
- Cold Start

1.3 Important Notices

To be sure that the UPS will be operated correctly, the following items should be noticed:

1. Read instructions carefully before operating the UPS.
2. UPS power connect instruction should be followed.
3. Please don‘t open the case to prevent danger.
4. If the UPS will be stored for long period, the battery must be charged once every 60 days.
5. Retain the load within the rating of UPS to prevent faults.
6. Handle unusual events according to the trouble-shooting guide.
7. Keep the UPS clean and dry.

2. SAFTY INSTRUCTION

2.1 Transporting

1. Disconnect all power cables if necessary.
2. Be careful not to damage the UPS while transporting.
3. Don‘t move the UPS upside down.
4. Please transport the UPS system only in the original packaging (to protect against shock and impact).

2.2 Positioning

1. Do not put the UPS on rugged or declined surface.
2. Do not install the UPS system near water or in damp environments.
3. Do not install the UPS system where it would be exposed to direct sunlight or near heat.
4. Do not block off ventilation openings in the UPS system's housing and don't leave objects on the top of the UPS.
5. Allow a minimum distance of 10 cm in the rear and two sides of the UPS for ventilation.
6. Keep the UPS far away from heat emitting sources.
7. Do not expose it to corrosive gas.
8. Ambient temperature : 0℃ - 40℃

2.3 Installation

1. Connect the UPS system only to an earthed shockproof socket outlet.
2. Do not connect domestic appliances such as hair dryers or office equipment which would overload the UPS system (e.g. laser printers) to UPS output sockets.
3. Place cables in such a way that no one can step on or trip over them.

2.4 Operation

1. Do not disconnect the mains cable on the UPS system or the building wiring socket outlet during operations since this would cancel the protective earthing of the UPS system and of all connected loads.
2. The UPS has its own internal power source (batteries). The output terminals may be live even when the UPS is not connected to the AC supply.
3. Ensure that no fluids or other foreign objects can enter the UPS system.

2.5 Maintenance and Service

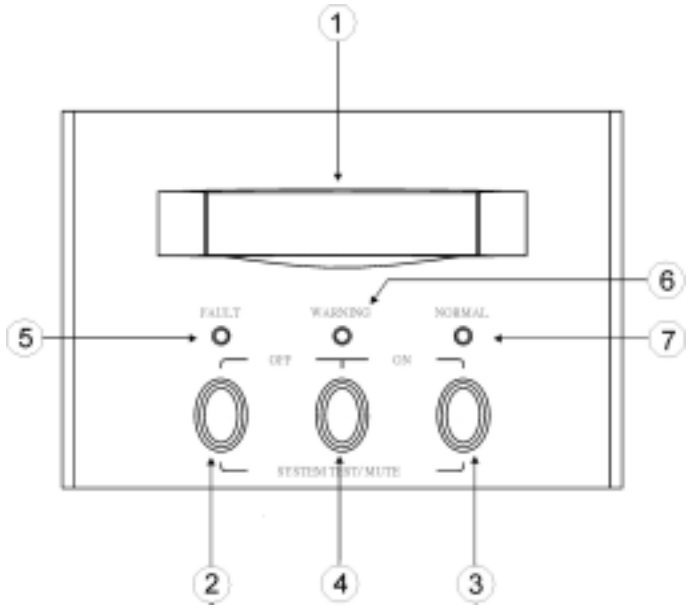
1. Caution - risk of electric shock.

   Even after the unit is disconnected from the mains power supply (building wiring socket outlet), components inside the UPS system are still connected to the battery and are still electrically live and dangerous. Before carrying out any kind of servicing and/or maintenance, disconnect the batteries and verify that no current is present.
2. Only persons adequately familiar with batteries and with the required precautionary measures may exchange batteries and supervise operations. Unauthorized persons must be kept well away from the batteries.

3. Batteries may cause electric shock and have a high short-circuit current. Please take the precautionary measures specified below and any other measures necessary when working with batteries:
   - remove wristwatches, rings and other metal objects
   - use only tools with insulated grips and handles.
4. When changing batteries, install the same number and same type of batteries.
5. Do not attempt to dispose of batteries by burning them. This could cause battery explosion.
6. Do not open or destroy batteries. Escaping electrolyte can cause injury to the skin and eyes.

3. SYSTEM DESCRIPTION

3.1 Front Panel Description for LCD Model



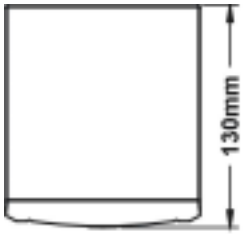
1. LCD Display: This indicates the UPS operation information, including UPS status, input/output voltage, input/output frequency, battery voltage, battery capacity left, output load, inside temperature, and the times of history events.
2. Up-key: Use to select upward the UPS status on LCD Display.
3. Down-key: Use to select downward the UPS status on LCD Display. In battery operation mode, press it with Up-key at the same time to disable the buzzer.

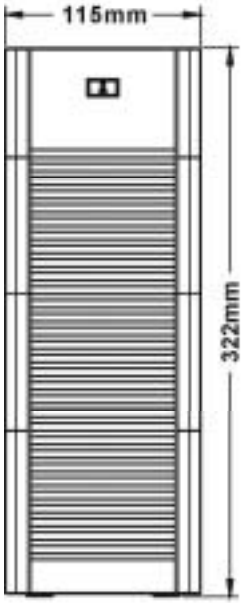
4. Enter-Key: It is pressed with the Down-key to turn on the UPS, with the Up-key to turn off the UPS. Beside, it is pressed to confirm and enter the item selected.
5. Fault LED (red): To indicate the UPS is in fault condition because of inverter shutdown or over-temperature.
6. Warning LED (yellow): To indicate the UPS is in the status of overload, bypass and battery back-up.
7. Normal LED (green): To indicate the UPS is operating normally.
8. ON/TEST/MUTE key: It should be pressed with the control key simultaneously to switch on UPS, do UPS auto-test in normal AC mode and turn off the buzzer in battery operation.

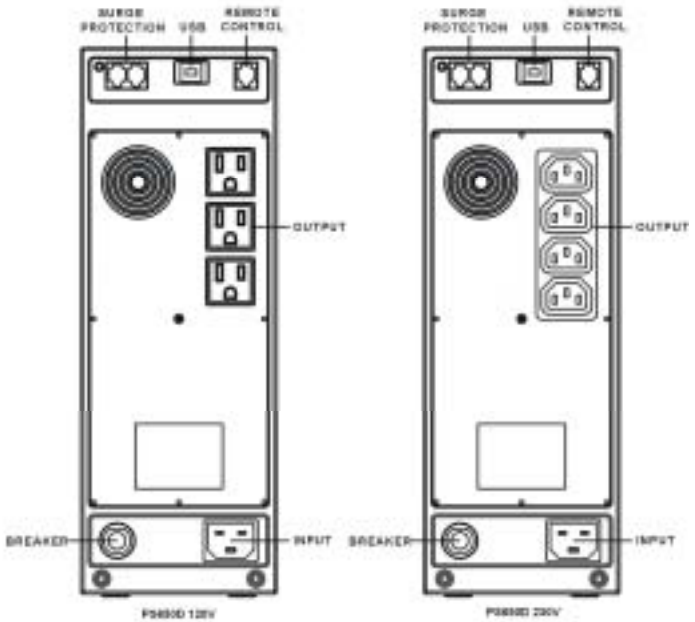
4. OUTLINE DESCRIPTION

4.1 Case Outline

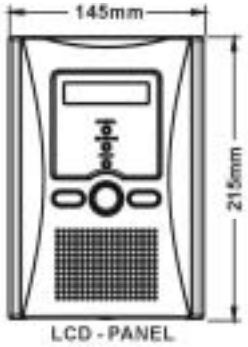
PS650D



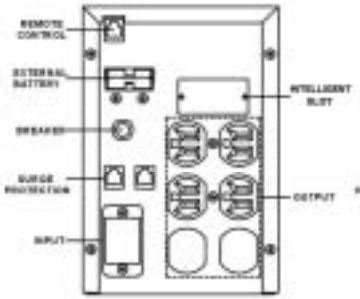


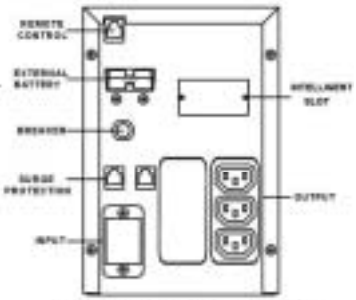


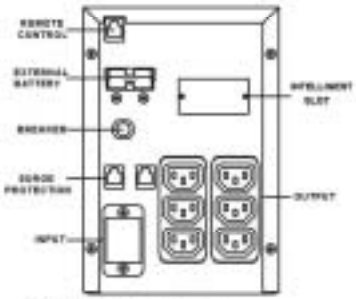
PS1000D / PS1500D / PS2000D

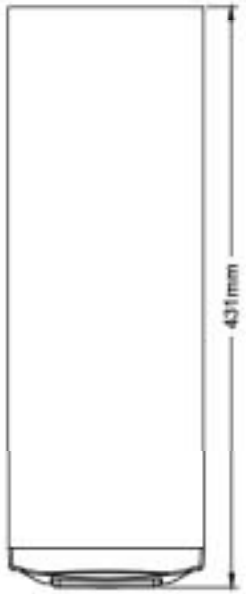


LCD - PANEL


PS1000/ 1500D 1x0V PANEL

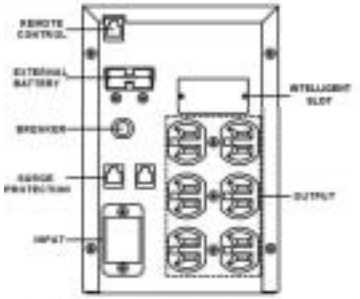

PS1000/ 1500D 2x0V PANEL


PS2000D 2x0V PANEL

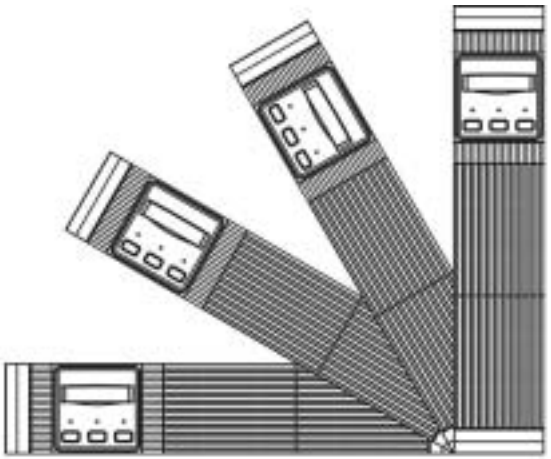


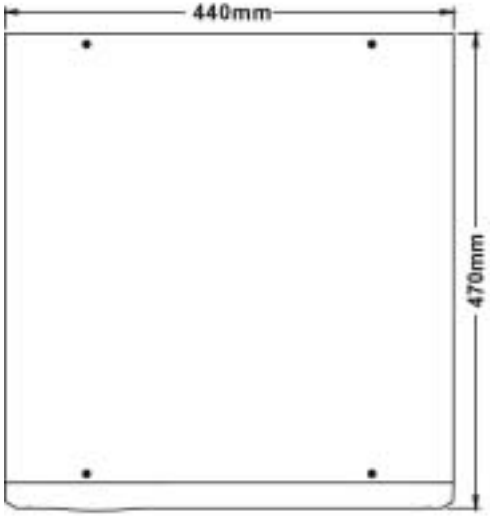
PS1500D/PS2000D

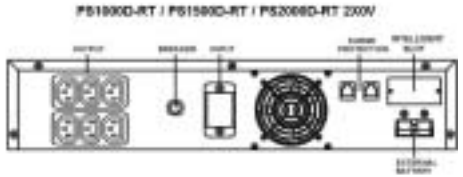
PS1000D

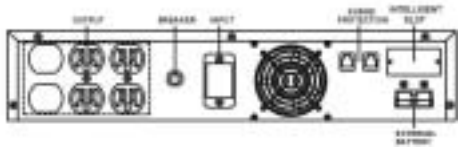

PS2000D 1x0V PANEL

PS1000D-RT / PS1500D-RT / PS2000D-RT (2U)

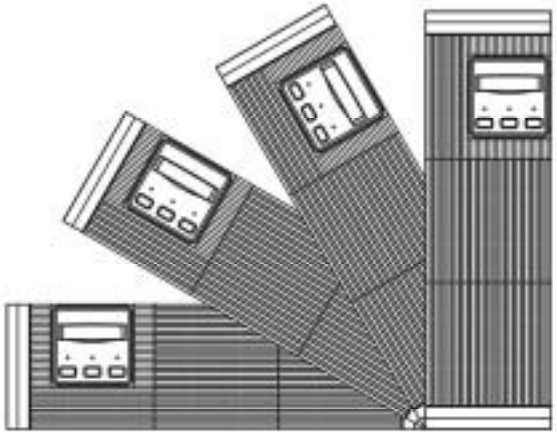




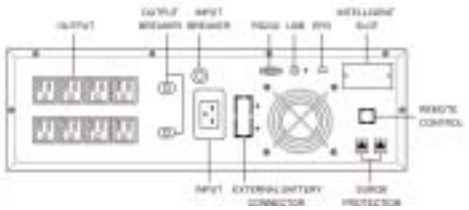




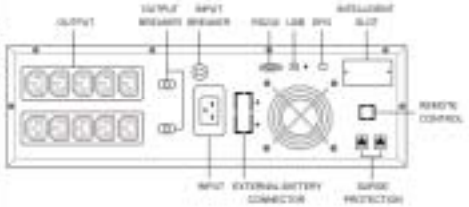
PS3000D-RT / PS3000DL Rack & Tower Convertible Unit (3U)

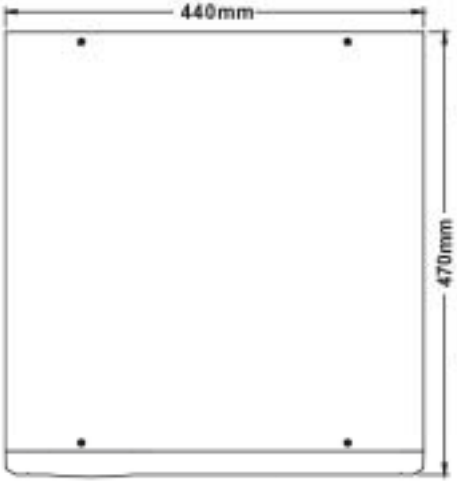


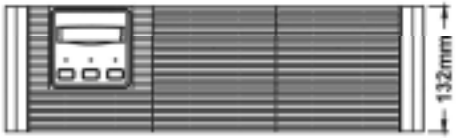
PS3000D-RT / PS3000DL 1X8V



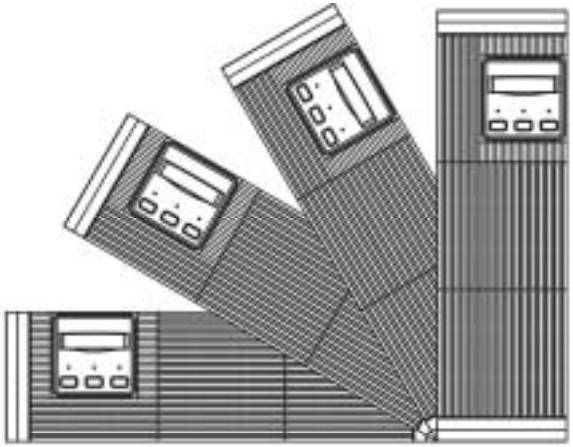
PS3000D-RT / PS3000DL 2X8V



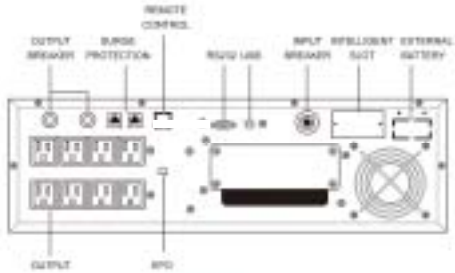




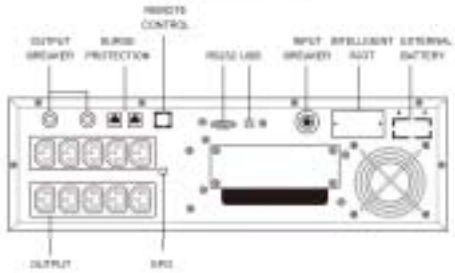
PS5000D-RT Rack & Tower Convertible Unit (3U)

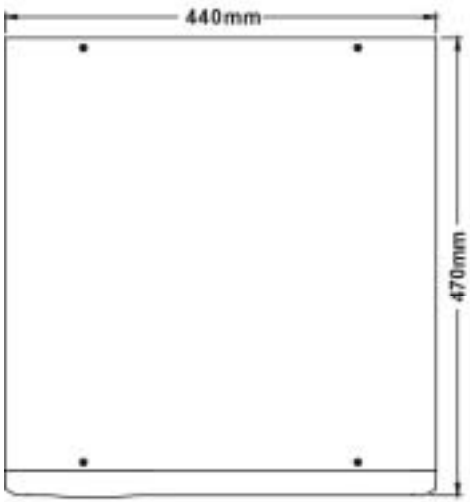


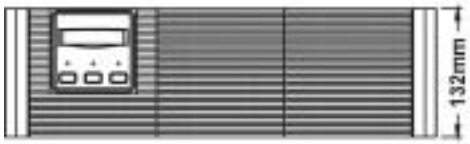
PS5000D-RT 1X8V



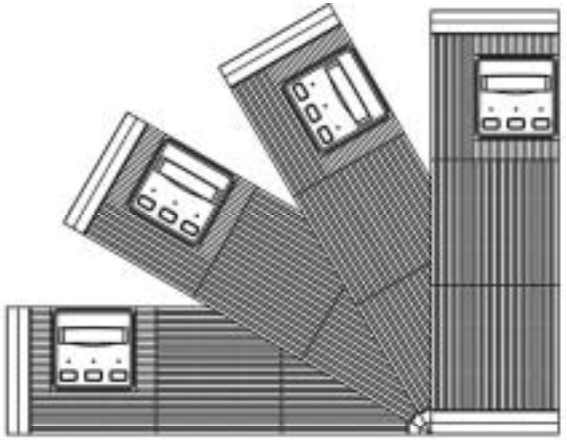
PS5000D-RT 2X8V

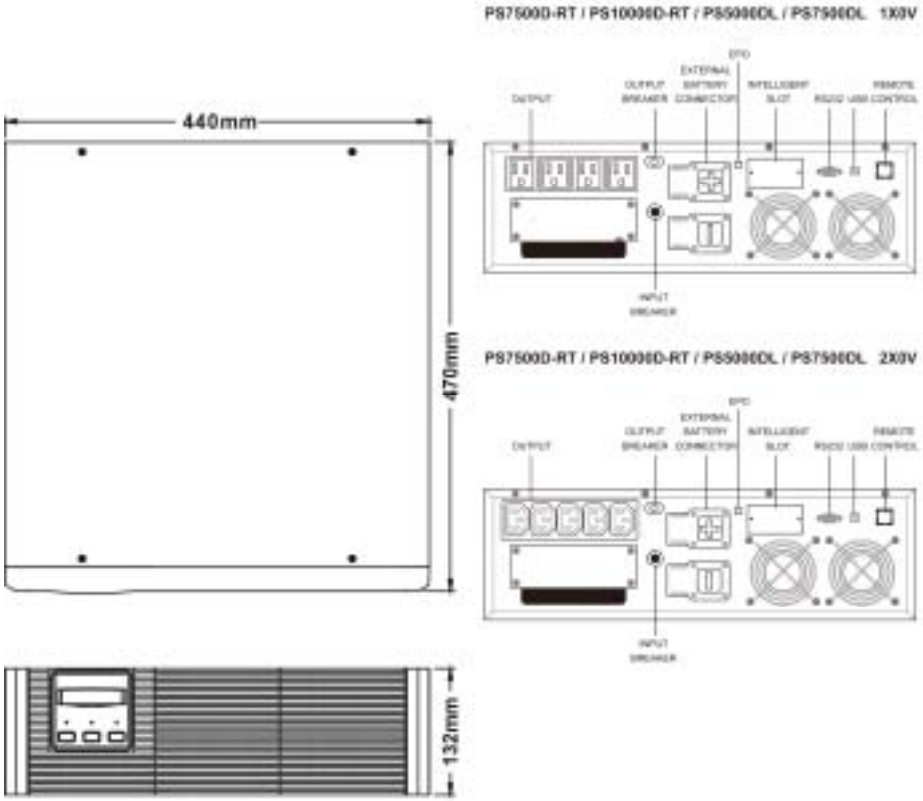






PS7500D-RT / PS10000D-RT / PS5000DL / PS7500DL　Rack & Tower Convertible Unit (3U)

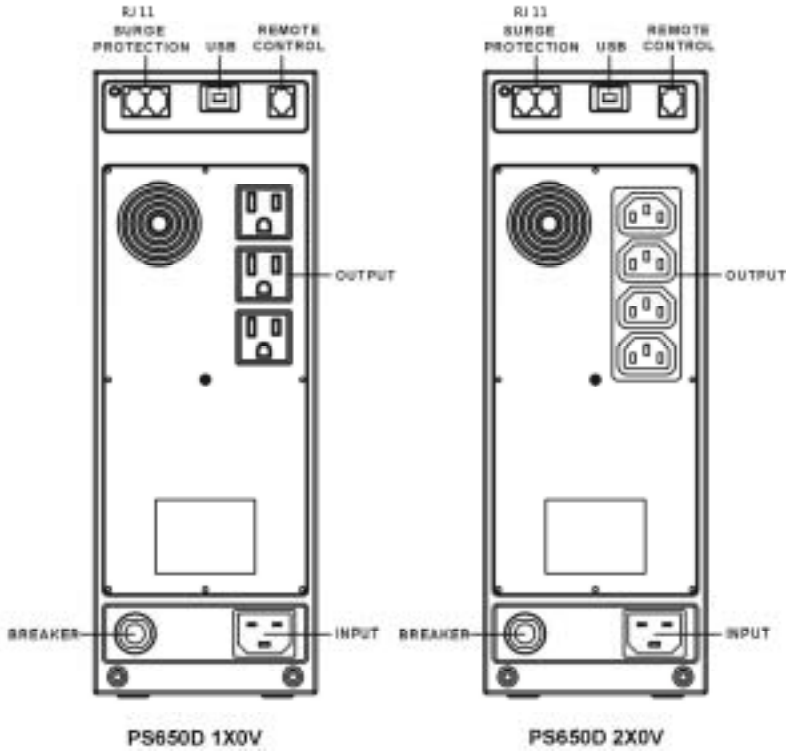




4.2 Back View Description

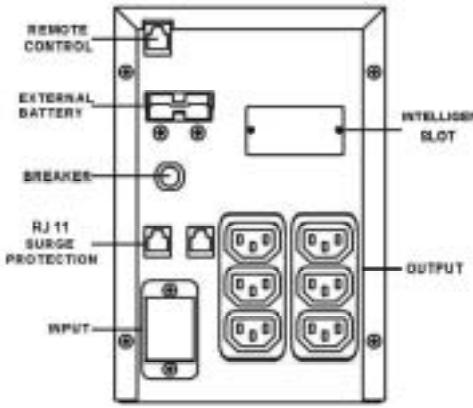
PS650D

1. USB Interface Port	4. Output Socket (NEMA 5-15R or IEC320)
2. Remote Control (optional)	5. Breaker
3. RJ11 Surge Protection (optional)	6. Input Socket

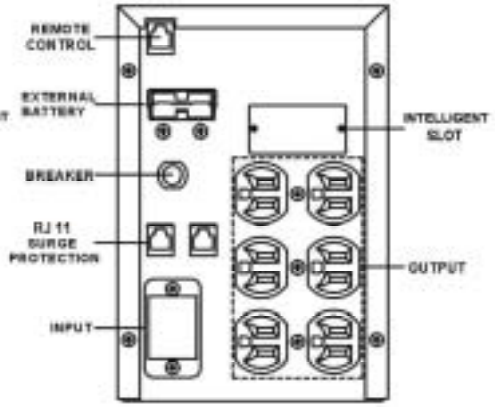


PS1000D / PS1500D / PS2000D

1. RS-232 Interface Port	5. Output Socket
2. Intelligent Slot (SNMP, optional)	6. External Battery Socket (L)
3. RJ11 Surge Protection	7. Breaker
4. Remote Control	8. Input Socket



PS1000D / PS1500D / PS2000D 2X0V



PS1000D / PS1500D / PS2000D 1X0V

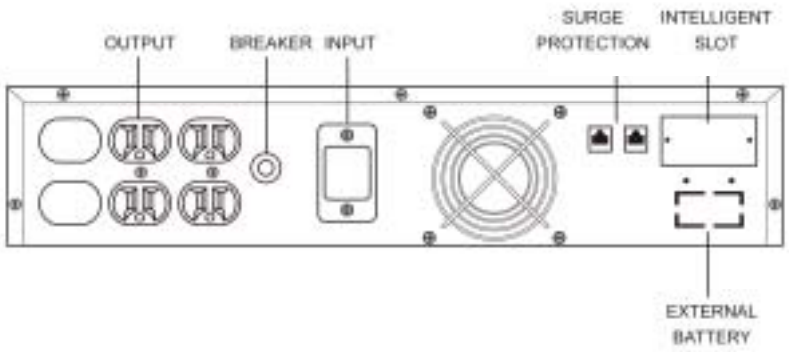
PS1000D-RM / PS1500D-RM (1U)

1. RS-232 Interface Port	4. Output Socket (NEMA 5-15R or IEC320)
2. Intelligent Slot (SNMP, optional)	5. Breaker
3. Remote Control (optional)	6. Input Socket

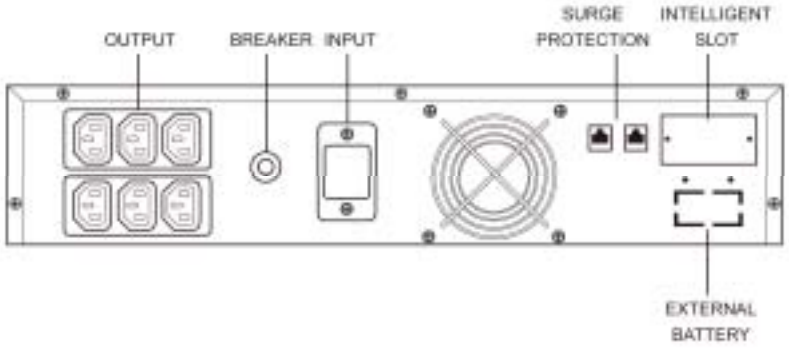
PS1000D-RT / PS1500D-RT / PS2000D-RT (2U)

1. RS-232 Interface Port	6. Fan
2. Intelligent Slot (SNMP, optional)	7. External Battery Socket (L)
3. RJ11 Surge Protection	8. Breaker
4. Remote Control (optional)	9. Input Socket
5. Output Socket (NEMA 5-15R or IEC320)	

PS1000D-RT / PS1500D-RT / PS2000D-RT 1X0V

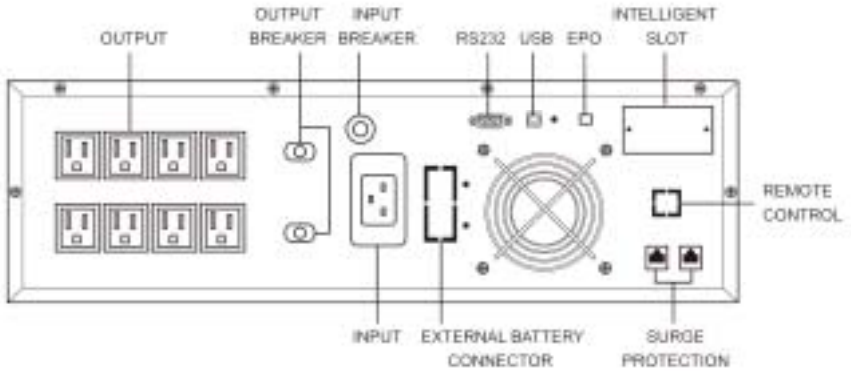


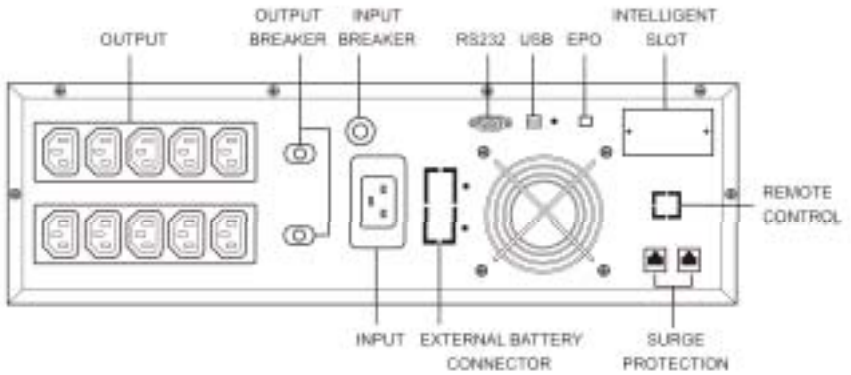
PS1000D-RT / PS1500D-RT / PS2000D-RT 2X0V



PS3000D-RT / PS3000DL Convertible Unit (3U)

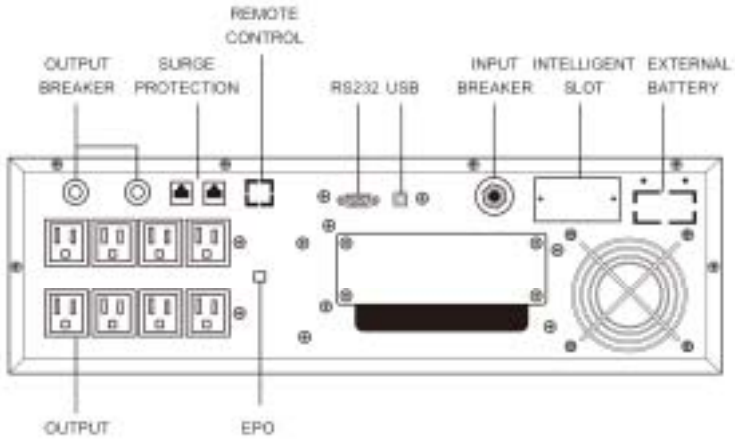
1. RS-232 Interface Port	6. Fan
2. Intelligent Slot (SNMP, optional)	7. External Battery Socket (L)
3. RJ11 Surge Protection	8. Breaker
4. Remote Control (optional)	9. Input Socket
5. Output Socket (NEMA 5-15R or IEC320)	

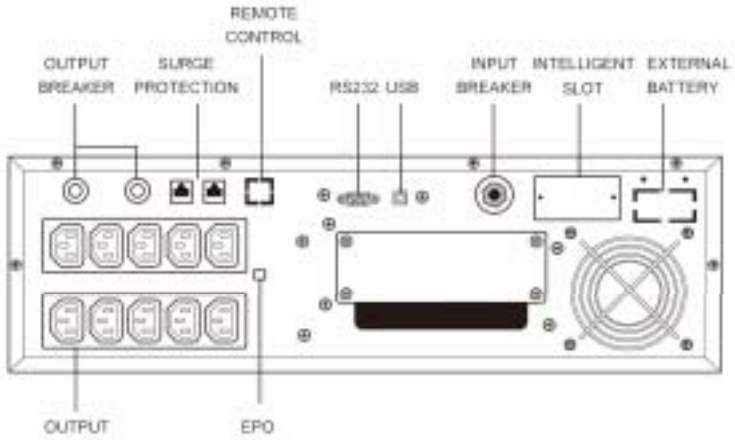




PS5000D-RT Convertible Unit (3U)

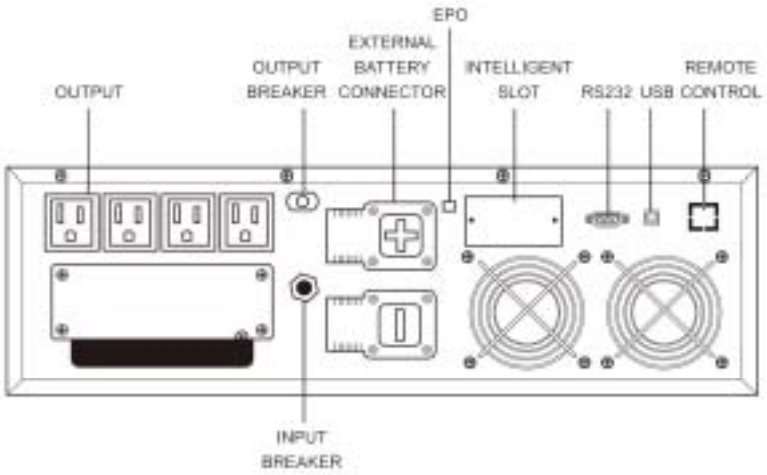
1. RS-232 Interface Port	6. Fan
2. Intelligent Slot (SNMP, optional)	7. External Battery Socket (L)
3. RJ11 Surge Protection	8. Breaker
4. Remote Control (optional)	9.Terminal Block
5. Output Socket (NEMA 5-15R or IEC320)	

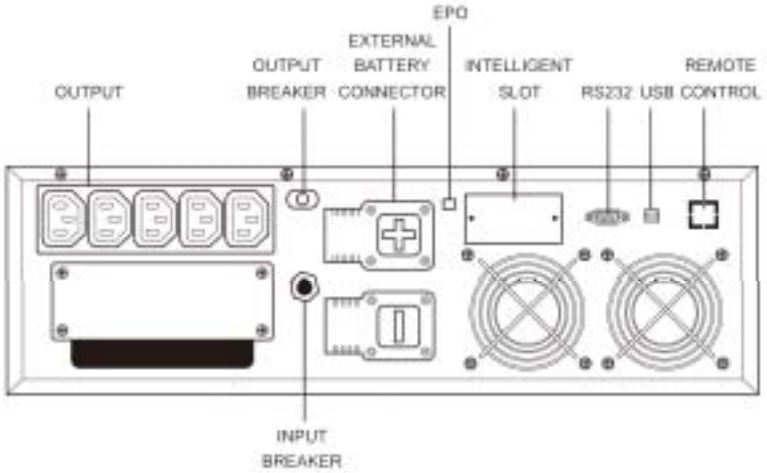




PS5000DL / PS7500D-RT / PS7500DL / PS10000D-RT Convertible Unit (3U)

1. RS-232 Interface Port	6. Fan
2. Intelligent Slot (SNMP, optional)	7. External Battery Socket (L)
3. RJ11 Surge Protection	8. Breaker
4. Remote Control (optional)	9.Terminal Block
5. Output Socket (NEMA 5-15R or IEC320)	





5. CABLE CONNECTION

5.1 Inspection

1. The system may be installed and wired only by qualified electricians in accordance with applicable safety regulations.
2. When installing the electrical wiring, please note the nominal amperage of your incoming feeder.
3. Inspect the packaging carton and its contents for damage. Please inform the transport agency immediately should you find signs of damage. Please keep the packaging in a safe place for future use.
4. Please ensure that the incoming feeder is isolated and secured to prevent it from being switched back on again.

5.2 Connection

1. UPS Input Connection

   If the UPS is connected via the power cord, please use a proper socket with protection against electric current and pay attention to the capacity of the socket.

2. UPS Output Connection

   The output of this model is with socket-types only (NEMA or IEC). Simply plug the load power cord to the output sockets to complete connection.

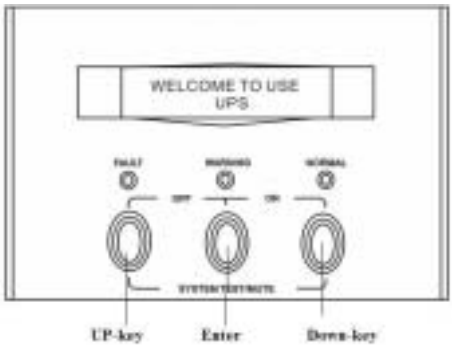
6. OPERATION

6.1 Check Prior to Start Up

1. Ensure the UPS is in a suitable positioning.
2. Check input cord is secured.
3. Make sure the load is disconnected or in the “OFF” position.
4. Check if input voltage meets the UPS rating required.

6.2 Operation Procedure

Please follow the instructions below for the UPS operation.



1. Once the AC source is connected, the LCD Display shall light up immediately to display first the main menu of greeting context and the Normal LED is blinking to indicate ready to switch on the inverter.

2. By pressing the Enter- key and the Down-key simultaneously for 3 seconds until the buzzer beeps twice, the UPS will start up and Normal LED lights up to indicate the power is from its inverter to the load.

3. When the LCD Select Down-key and the LCD Select Up-key are pressed simultaneously for 3 seconds until the buzzer beeps twice, the inverter will be turned off and the UPS is on the standby status (LCD display illuminates and Normal LED is blinking) until AC source is disconnected.

6.3 Storage Instruction

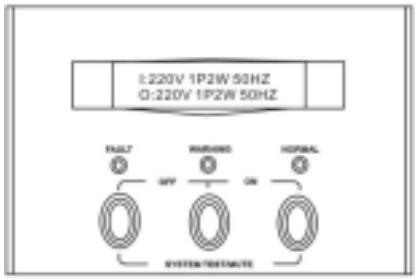
Disconnect input power in rear panel if you will not use it for long period. If the UPS is stored over 3 months, please keep supplying power to the UPS for at least 24 hours to ensure battery fully recharged.

6.4 LCD Display

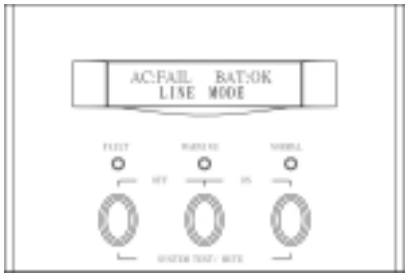
Use Up/Down key to select menu-displays of the LCD described below. This screen will refresh once the system power is enabled.

Note: Following menus are based on 220V system. To 110V system, menus are same with 220V system except voltage values have some difference.

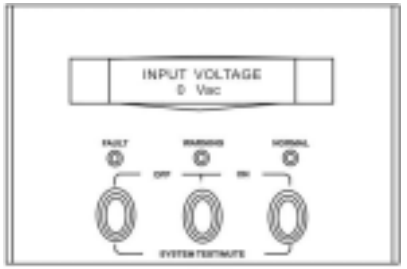
1. Rated Spec Menu

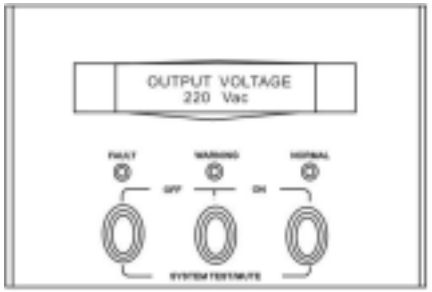


2. Status Menu

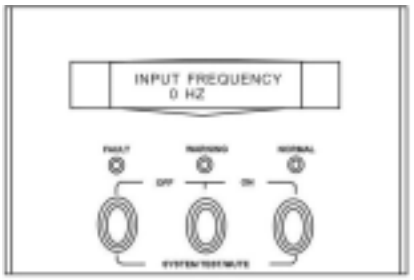


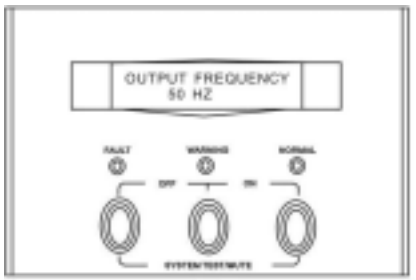
3. Voltage Menu



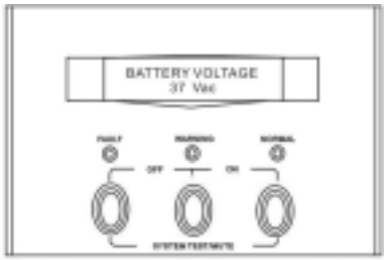


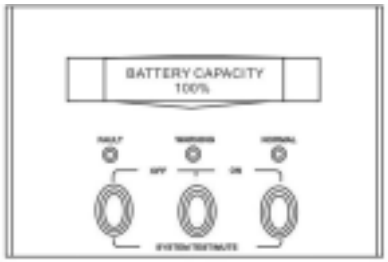
4. Frequency Menu



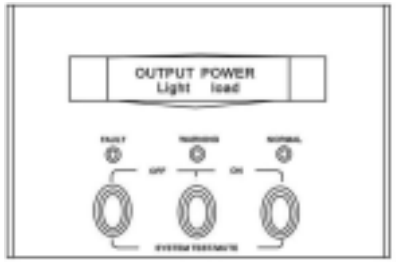


5. Battery Status Menu

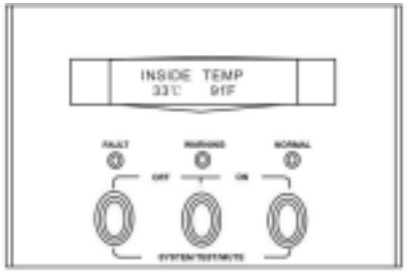




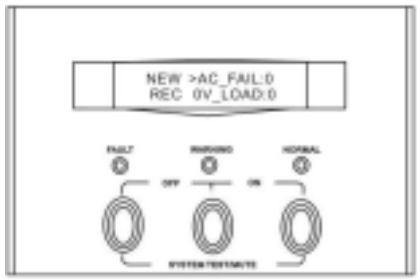
6. V Output Power Menu

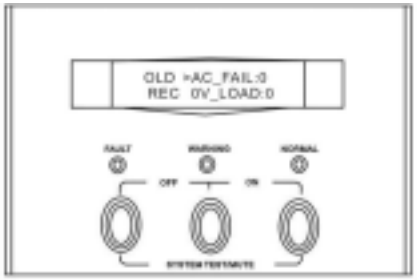


7. Temperature Menu



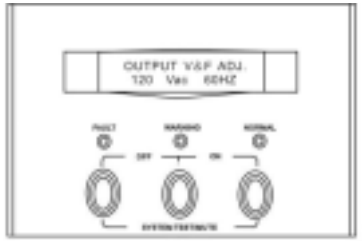
8. History Record Menu



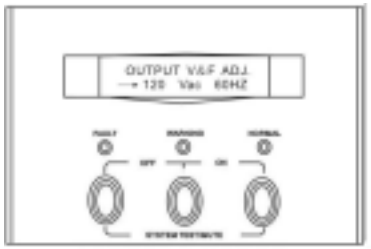


9.Output Voltage/Frequency Set Menu

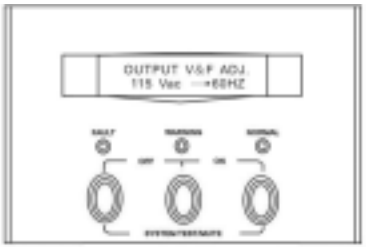
A. In this screen, press on/off Control Key to enter the following steps for output voltage or frequency setting.



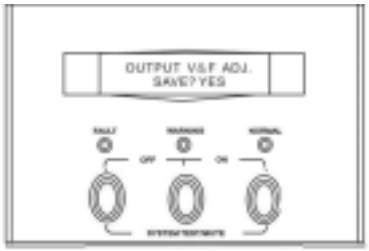
B. The cursor (→) will pop up to indicate the output voltage or frequency newly selected.



C. Use Up or Down-key to adjust the output voltage (220V, 230V and 240V are available for 220V system; 100V, 110V, 115V and 120V are available for 120V system) or output frequency(50Hz and 60Hz are available only)



D. Once the correct voltage or frequency is selected, press on/off Control Key again to save the data.



7.TROUBLE SHOOTING GUIDE

7.1 For LCD Model

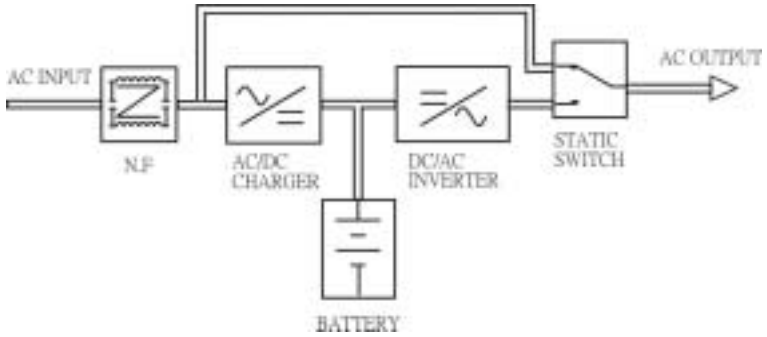
The following guideline may be helpful for basic problem solving.

No.	UPS STATUS	POSSIBLE CAUSE	ACTION
1	AC utility power is normal. UPS is running normally, but fault LED lits up. Buzzer beeps continuously.	1. Charger PCB is damaged. 2. Fan is damaged. 3. Unknown	1. Replace the charger PCB. 2. Replace the fan. 3. Restart UPS
3	AC utility power is normal but UPS is overloaded. Warning LED lits up and buzzer beeps per second.	Overload 100%< load< 125%	Please reduce the critical load to <100%.
4	AC utility power is normal. Warning LED does not fade out and buzzer beeps per 0.5 second.	Overload 125%< load<150%	Please reduce the critical load to <100%.
5	AC utility power is normal. Warning LED lits up and buzzer beeps continuously.	Overload 150%< load	Please reduce the critical load to <100%.

No.	UPS STATUS	POSSIBLE CAUSE	ACTION
6	AC utility power fails .The load is supplied by battery power. Buzzer alarm sounds every 4 seconds.	1. AC utility power failure. 2. AC input connection may be not correct.	1. Reduce the less critical load in order to extend backup time. 2. Please check the rated input or connected line.
7	AC utility fails. UPS is in battery backup mode. Buzzer alarm beeps every second.	Battery power is approaching low level.	UPS will shut down automatically. Please save data or turn off the loads soon.
8	AC utility power fails. UPS has shut down automatically.	Battery runs out	UPS will restart up when AC utility power is restored.

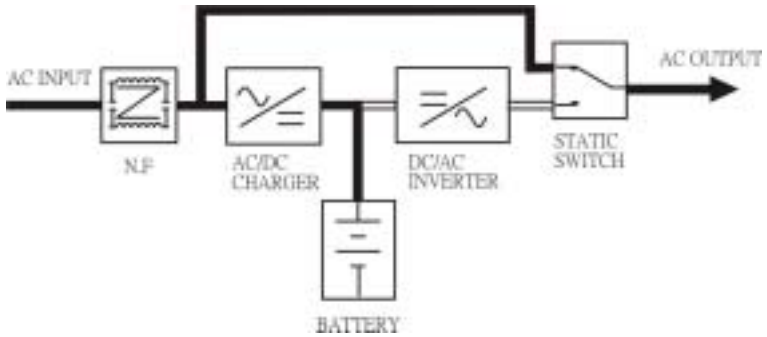
8. OPERATION MODES OF THE UPS

8.1 UPS System Block Diagram



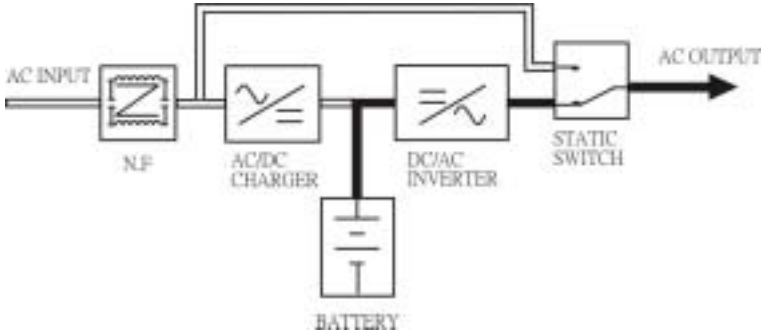
8.2 Normal Operation

There are two main loops when AC utility is normal: the AC loop and the battery charging loop. The AC output power comes from AC utility input and passes through static switch to support power to load. The battery charging voltage comes from AC utility input and converted by AC/DC charger to support battery-charging power.



8.3 AC Utility Failure (Battery Mode)

The AC output comes from battery, passing through DC/AC inverter and static switch within the battery backup time.



9. COMPUTER INTERFACE

9.1 communication interface

The communication interface (DB9 port) on the back of the UPS may be connected to a host computer. The port provides communication of RS-232 for monitoring software (like **RUPSII** or **UPSilon 2000** of Megatec Company)

The UPS communicates with the computer by sending out RS-232 data streams to one of the serial ports. By this method the user is able to monitor the following parameters.

Input Voltage	Indicates the present input voltage to the UPS system when AC power is present.
Output Voltage	Indicates the present output voltage of the UPS.
AC Frequency	Indicates the actual output frequency of the UPS.
Battery Voltage	Indicates the present DC voltage of the UPS battery.
Temperature	Indicates the actual temperature inside the UPS.

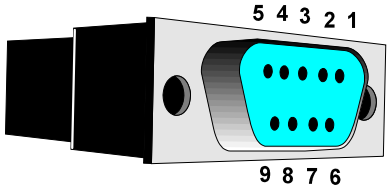
9.2 DB9 PIN Assignment

PIN 2: RS232 RXD

PIN 3: RS232 TXD

PIN 5: GND

The other PINs have no function.



DB9 INTERFACE CONNECTOR

10. SPECIFICATION

Model Name	PS650D	PS1000D	PS1500D	PS2000D
Topology	Line-interactive			
On-battery Output Waveform	Pure Sine Wave			
Maximum Capacity	650VA / 405W	1000VA / 625W	1500VA / 938W	2000VA / 1250W
Cabinet Type	Tower			
INPUT				
Nominal Input Voltage	110/120Vac or 220/230/240Vac*			
Nominal Input Frequency	50Hz~60Hz Auto Sensing			
Input Voltage Range	89Vac ~ 150Vac(110/120Vac) or 170Vac ~ 300Vac(220/230/240Vac)			
Input Protection	Circuit breaker			
OUTPUT				
Nominal Output Voltage	110/120Vac or 220/230/240Vac re-settable via LCD panel			
Voltage Regulation(Line Mode)	Rated Voltage ± 15%			
Voltage Regulation(Battery Mode)	< 3% RMS for entire battery voltage range			
Frequency Regulation(Line Mode)	Synchronize to AC Mains			
Frequency Regulation(Battery Mode)	50Hz or 60Hz ± 0.1Hz			
Efficiency	>80%			
Transfer Time(Typical)	4 ms			
DC Start	Yes			
Automatic Voltage Regulation(AVR)	Yes			
Number of Outlets	3 Battery backup (US) 4 Battery backup (IEC)	4 Battery backup (US) 3 Battery backup (IEC)		6 Battery backup (US) 5 Battery backup (IEC)
PROTECTION				
Data Line Surge Protection	RJ11 (optional)	RJ11		
Overload Protection(Line Mode)	> 110%, then Buzzer Alarm and Amber LED blink continuously			
Overload Protection(Battery Mode)	110%~150% for 30 sec, >150% for 200ms, then UPS Shuts Down			
Short Circuit Protection(Battery Mode)	Electronic Circuit			
BATTERY				
Battery Voltage	12V / 9Ah x 1	12V / 7.2Ah x 2	12V / 7.2Ah x 3	12V / 9Ah x 3
Typical Backup Time(Full / Half Load)	3 / 11min	3 / 11min	4 / 11min	3 / 10 min
Recharge Time to 90% (Typical)**	< 4 Hours			
Protection	Automatic self-test & discharge protection & Replace battery indicator			
ADVANCED WARNINGS / DIAGNOSTICS				
Front Panel	LED: Normal (Green)	LCD: UPS status, I/P&O/P Voltage Frequency, Load Level, Battery Voltage & Level, Temperature, Model LED: Normal (Green), Warning (Amber), Fault (Red)		
Battery Mode Audible Alarms	Beeping every 4 seconds			
Low Battery Audible Alarms	Beeping every second			
UPS Fault Audible Alarms	Beeping continuously			
Overload Audible Alarms	Beeping twice per second			
COMMUNICATIONS INTERFACE				
Configuration	USB (Remote control optional)	RS232, Remote Control (Optional interface of USB, Dry Contact, SNMP, RS485, AS400 or Modbus)		
ENVIRONMENTAL				
Operation Temperature	0~40°C / 32~104°F			
Storage Temperature	-20~60°C / -4~140°F			
Relative Humidity	0~95% humidity (no condensation)			
Audible Noise	< 45 dBA			
Physical				
Dimensions (Physical / Packing) (in) (WxHxD) (mm)	4.9 x 12.8 x 5.2 / 6.7 x 15 x 8.5 115 x 322 x 130 / 221 x 406 x 199	5.8 x 8.4 x 15.2 / 10 x 12.8 x 20.4 145 x 210 x 380 / 250 x 320 x 510	5.8 x 8.4 x 17.8 / 10 x 12.8 x 20.4 145 x 210 x 445 / 250 x 320 x 510	
Weight (Net / Gross) (lbs) (kg)	13.7 / 15.5 6.2 / 8.4	36.4 / 41.3 16.5 / 18.7	38.5 / 41.7 17.5 / 18.9	42.8 / 47.2 19.4 / 21.4

Specifications are subject to change without notices.

* Models of these nominal voltages are available, however each model is present to certain nominal voltage, which is not user-changeable.

** Typical backup time depends on power consumption of equipment attached and on UPS battery capacity. Values here are for reference only.

For special application >20A max. current is settable, please specify when ordering.

Model Name	PS1000D-RM	PS1500D-RM	PS1000D-RT	PS1500D-RT	PS2000D-RT
Topology	Line-interactive				
On-battery Output Waveform	Pure Sine Wave				
Maximum Capacity	1000VA / 625W	1500VA / 938W	1000VA / 625W	1500VA / 938W	2000VA / 1250W
Cabinet Type	1U Rack		2U Tower & Rack Convertible		
INPUT					
Nominal Input Voltage	110/120Vac or 220/230/240Vac*				
Nominal Input Frequency	50Hz~60Hz Auto Sensing				
Input Voltage Range	85Vac ~ 150Vac(110/120Vac) or 170Vac ~ 300Vac(220/230/240Vac)				
Input Protection	Circuit breaker				
OUTPUT					
Nominal Output Voltage	110/120Vac or 220/230/240Vac re-settable via LCD panel				
Voltage Regulation(Line Mode)	Rated Voltage ± 15%				
Voltage Regulation(Battery Mode)	< 3% RMS for entire battery voltage range				
Frequency Regulation(Line Mode)	Synchronize to AC Mains				
Frequency Regulation(Battery Mode)	50Hz or 60Hz ± 0.1Hz				
Effeciency	>80%				
Transfer Time(Typical)	4 ms				
DC Start	Yes				
Automatic Voltage Regulation(AVR)	Yes				
Number of Outlets	4 Battery backup (US) 5 Battery backup (IEC)		4 Battery backup (US) 6 Battery backup (IEC)		
PROTECTION					
Data Line Surge Protection	RJ11				
Overload Protection(Line Mode)	> 110%, then Buzzer Alarm and Amber LED blink continuously.				
Overload Protection(Battery Mode)	110%~150% for 30 sec, >150% for 200ms, then UPS Shuts Down				
Short Circuit Protection(Battery Mode)	Electronic Circuit				
BATTERY					
Battery Voltage	12V / 7.2Ah x 2	12V / 9Ah x 2	12V / 7.2Ah x 2	12V / 7.2Ah x 3	12V / 9Ah x 3
Typical Backup Time(Full / Half Load)	3 / 11min	5 / 15 min	3 / 11min	4 / 11min	3 / 10 min
Recharge Time to 90% (Typical)**	< 4 Hours				
Protection	Automatic self-test & discharge protection & Replace battery indicator				
ADVANCED WARNINGS / DIAGNOSTICS					
Front Panel	LCD: UPS status, I/P&O/P Voltage Frequency, Load Level, Battery Voltage & Level, Temperature, Model				
	LED: Normal (Green), Warning (Amber), Fault (Red)				
Battery Mode Audible Alarms	Beeping every 4 seconds				
Low Battery Audible Alarms	Beeping every second				
UPS Fault Audible Alarms	Beeping continuously				
Overload Audible Alarms	Beeping twice per second				
COMMUNICATIOS INTERFACE					
Configuration	RS232 (Optional interface of USB, Dry Contact, SNMP, RS485, AS400, Modbus or Remote Control)				
ENVIRONMENTAL					
Operation Temperature	0~40°C / 32~104°F				
Storage Temperature	-20~60°C / -4~140°F				
Relative Humidity	0~95% humidity (no condensation)				
Audible Noise	< 45 dBA				
PHYSICAL					
Dimensions (Physical / Packing) (in) (WxHxD) (mm)	17.6 x 1.76 x 20.6 / 24.4 x 9.2 x 22.2 440 x 44 x 515 / 610 x 230 x 565		17.6 x 3.52 x 18.6 / 24.4 x 9.2 x 22.2 440 x 88 x 465 / 610 x 230 x 555		
Weight (Net / Gross) (lbs) (kg)	39.7 / 42.8 18 / 19.4	44.2 / 47.2 20 / 21.4	35.8 / 38.9 16.2 / 17.6	38.6 / 41.7 17.5 / 18.9	54.1 / 59 24.5 / 26.7

Specifications are subject to change without notices.

* Models of these nominal voltages are available, however each model is present to certain nominal voltage, which is not user-changeable

** Typical backup time depends on power consumption of equipment attached and on UPS battery capacity. Values here are for reference

For special application >20A max. current is settable, please specify when ordering.

Model Name	PS3000D-RT	PS5000D-RT	PS3000DL	PS5000DL
Topology	Line-interactive			
On-battery Output Waveform	Pure Sine Wave			
Maximum Capacity	3000VA / 1875W	5000VA / 3125W	3000VA / 1875W	5000VA / 3125W
UPS Type	Tower & Rack Convertible		Long backup time	
Cabinet Type	3U Rack & Tower Convertible			
INPUT				
Nominal Input Voltage	110/120Vac or 220/230/240Vac*			
Nominal Input Frequency	45~70Hz Auto Sensing			
Input Voltage Range	85Vac ~ 150Vac or 170Vac ~ 300Vac			
Input Protection	Circuit breaker			
OUTPUT				
Nominal Output Voltage	110/120Vac or 220/230/240Vac re-settable via LCD panel			
Voltage Regulation(Line Mode)	± 15%			
Voltage Regulation(Battery Mode)	< 3% RMS for entire battery voltage range			
Frequency Regulation(Line Mode)	Synchronize to AC Mains			
Frequency Regulation(Battery Mode)	50Hz or 60Hz ±0.1Hz			
Effiecincy	> 80%			
Transfer Time(Typical)	4 ms			
DC Start	Yes			
Automatic Voltage Regulation(AVR)	Yes			
Number of Outlets	8 Battery backup (US) 10 Battery backup (IEC)	8 Battery backup (US) + 1 terminal block 10 Battery backup (IEC) + 1 terminal block	8 Battery backup (US) 10 Battery backup (IEC)	4 Battery backup (US) + 1 terminal block 5 Battery backup (IEC) + 1 terminal block
POTECTION				
Data Line Surge Protection	RJ11			
Overload Protection(Line Mode)	> 110% , then Buzzer Alarm and Amber LED blink continuously			
Overload Protection(Battery Mode)	110% ~ 150% for 30 sec. , >150% for 200ms, then UPS Shuts Down			
Short Circuit Protection(Battery Mode)	Electronic Circuit			
BATTERY				
Battery Voltage	12V / 7.2Ah X 3, 3sets	12V / 9Ah X 4, 2sets	36 Vdc/no batt	48 Vdc/no batt
Typical Backup Time(Full/Half load)**	4/11min	3/11min	Backup Time Based on batteries	
Recharge Time to 90% (Typical)	< 4 Hours		Depend on battery	
Protection	Automatic self-test & discharge protection & Replace battery indicator			
ADVANCED WARNINGS / DIAGNOSTICS				
Front Panel (LCD / LED)	UPS status, I/P&O/P Voltage Frequency, Load Level,Battery Voltage & Level, Temperature, Model			
	Normal (Green), Warning (Amber), Fault (Red)			
Audible Alarms Battery Mode	Beeping every 4 seconds			
Audible Alarms Low Battery	Beeping every second			
Audible Alarms UPS Fault	Beeping Continuously			
Audible Alarms Overload	Beeping twice per second			
COMMUNICATIOS INTERFACE				
Configuration	RS232 (Optional interface of USB, Dry Contact, SNMP, RS485, AS400, Modbus or Remote Control)			
ENVIRONMENTAL				
Operation Temperature	0~40°C / 32~104°F			
Storage Temperature	-20~60°C / -4~140°F			
Relative Humidity	0~95% humidity (no condensation)			
Audible Noise	< 45 dBA			
PHYSICAL				
Dimensions (Physical / Packing) (in) (WxHxD) (mm)	17.0 x 5.28 x 18.6 / 28.6 x 16 x 21.6 440 x 132 x 465 / 720 x 400 x 540	17.6 x 5.28 x 24.6 / 28.6 x 16 x 21.6 440 x 132 x 620 / 720 x 400 x 540	17.0 x 5.28 x 18.6 / 28.6 x 16 x 21.6 440 x 132 x 465 / 720 x 400 x 540	
Weight (Net / Gross) (lbs) (kg)	81.5 / 92.6 36.9 / 41.9	110 / 134.3 49.8 / 60.8	88.25 / 78.9 25 / 34.8	69.8 / 91.5 31.6 / 41.4

Specifications are subject to change without notices.

* Models of these nominal voltages are available, however each model is present to certain nominal voltage, which is not user-changeable.

** Typical backup time depends on power consumption of equipment attached and on UPS battery capacity. Values here are for reference only.

For special application >20A max. current is settable, please specify when ordering.

PS3000DL / PS5000DL / PS10000DL are long backup models, the batteries are not available inside. Must connect to an external batter pack.

3U External battery packs for PS-DL models : BP PS16D (16pcs 12V/7Ah or 16pcs 12V/9Ah, Dimension : 440(W)x132(H)x465(D)mm).

Model Name	PS7500D-RT	PS10000D-RT	PS7500DL
Topology	Line-interactive		
On-battery Output Waveform	Pure Sine Wave		
Maximum Capacity	7500VA / 4999W	10KVA / 6250W	7500VA / 4999W
UPS Type	Tower & Rack Convertible		Long backup time
Cabinet Type	3U Rack & Tower Convertible		
INPUT			
Nominal Input Voltage	220/230/240Vac*		
Nominal Input Frequency	45~70Hz Auto Sensing		
Input Voltage Range	170Vac ~ 300Vac		
Input Protection	Circuit breaker		
OUTPUT			
Nominal Output Voltage	220/230/240Vac re-settable via LCD panel		
Voltage Regulation(Line Mode)	± 15%		
Voltage Regulation(Battery Mode)	± 3% RMS for entire battery voltage range		
Frequency Regulation(Line Mode)	Synchronize to AC Mains		
Frequency Regulation(Battery Mode)	50Hz or 60Hz ±0.1Hz		
Efficiency	> 80%		
Transfer Time(Typical)	4 ms		
DC Start	Yes		
Automatic Voltage Regulation(AVR)	Yes		
Number of Outlets	4 Battery backup (US) + 1 terminal block 5 Battery backup (EC)+ 1 terminal block		
PROTECTION			
Data Line Surge Protection	RJ11		
Overload Protection(Line Mode)	> 110% , then Buzzer Alarm and Amber LED blink continuously		
Overload Protection(Battery Mode)	110% ~ 150% for 30 sec... >150% for 200ms, then UPS Shuts Down		
Short Circuit Protection(Battery Mode)	Electronic Circuit		
BATTERY			
Battery Voltage	12V / 7.2Ah X 4, 4sets	12V / 9Ah X 4, 4sets	48Vdc/no batt
Typical Backup Time(Full/Half load)**	4/12min	3/12min	Backup Time Based on batteries
Recharge Time to 90% (Typical)	< 4 Hours		Depend on battery
Protection	Automatic self-test & discharge protection & Replace battery indicator		
ADVANCED WARNINGS / DIAGNOSTICS			
Front Panel (LCD / LED)	UPS status, I/P&O/P Voltage Frequency, Load Level,Battery Voltage & Level, Temperature, Model		
	Normal (Green), Warning (Amber), Fault (Red)		
Audible Alarms Battery Mode	Beeping every 4 seconds		
Audible Alarms Low Battery	Beeping every second		
Audible Alarms UPS Fault	Beeping Continuously		
Audible Alarms Overload	Beeping twice per second		
COMMUNICATION INTERFACE			
Configuration	RS232 (Optional interface of USB, Dry Contact, SNMP, RS485, AS400, Modbus or Remote Control)		
ENVIRONMENTAL			
Operation Temperature	0~40°C / 32~104°F		
Storage Temperature	-20~60°C / -4~140°F		
Relative Humidity	0~95% humidity (no condensation)		
Audible Noise	< 45 dBA		
PHYSICAL			
Dimensions (Physical / Packing) (in) (WxHxD) (mm)	17.6 x 5.28 x 19.6 / 20.8 x 16 x 21.6 448 x 132 x 495 / 720 x 400 x 540		
Weight (Net / Gross) (lbs) (kg)	69.8 / 91.5 31.6 / 41.4	172.6 / 196.5 78.1 / 88.9	80 / 100 36.2 / 45.4

Specifications are subject to change without notices.

*** Models of these nominal voltages are available, however each model is present to certain nominal voltage, which is not user-changeable.**

**** Typical backup time depends on power consumption of equipment attached and on UPS battery capacity. Values here are for reference only.**

 # For special application >20A max. current is settable, please specify when ordering.

 # PS3000DL / PS5000DL / PS10000DL are long backup models, the batteries are not available inside. Must connect to an external batter pack.

 # 3U External battery packs for PS-DL models : BP PS16D (16pcs 12V/7Ah or 16pcs 12V/9Ah, Dimension : 448(W)x132(H)x495(D)mm).

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